IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:)
Richard H. Boivie)
Serial No.: 09/696,566)
Group Art Unit: 2155)
Filed: October 25, 2000)
Examiner: Philip B. Tran)
For: *MULTICAST ENABLED MAIL*)

APPEAL BRIEF

MS-APPEAL BRIEF-PATENTS
Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

This Appeal Brief is filed in response to a Final Office Action dated August 22, 2006, followed by a Notice of Appeal with Pre-Appeal Conference Request Brief filed November 20, 2006, and a Notice of Disagreement and Invitation to file Appeal Brief dated Jan. 26, 2007. Reconsideration of the Application, withdrawal of the rejections, and allowance of the claims are respectfully requested.

CERTIFICATE OF TRANSMISSION

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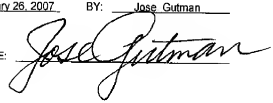
ON: February 26, 2007 BY: Jose Gutman

SIGNATURE: 

I. REAL PARTY IN INTEREST

The real party in interest is International Business Machines (IBM) of Armonk, NY.

II. RELATED APPEALS AND INTERFERENCES

There are no related appeals or interferences.

III. STATUS OF CLAIMS

Claims 1-20 are pending.

Claims 1 through 20 are rejected.

The Appellant is appealing the rejection of independent claims 1, 3, 6, 8, 13, and 17 (and all other remaining claims that depend from these claims). Claims 1, 3, 6, 8, 13, and 17 are on appeal.

IV. STATUS OF AMENDMENTS

The Examiner issued a final rejection of claims 1-20 in the Final Office Action of August 22, 2006. Appellants submitted a Notice of Appeal with Pre-Appeal Conference Request Brief filed November 20, 2006 in response to the Final Office Action.

V. SUMMARY OF THE CLAIMED SUBJECT MATTER

This summary references line numbers of the specification as filed. It is to be noted that the text of each page of the filed specification starts with line number 5.

The pending independent claims under appeal in this case are corresponding method, computer readable medium, and apparatus claims. An advantageous application of the claimed subject matter that provides a clear, concise understanding of the method and apparatus of the present claimed invention is described in the specification at page 9, lines 10-16. The following identifies adequate support for the claims under appeal in the present application and in the commonly owned and co-

pending U.S. Patent Nos. 6,415,312, 6,502,140, and 6,625,773, which have been incorporated by reference in their entirety.

Independent claim 1 sets forth the following subject matter.

A) receiving a mail message that is created and sent by a user,: Abstract; FIG. 5; Page 6, lines 4-6; U.S. Patent No. 6,415,312 at col. 6, lines 31-44; U.S. Patent No. 6,502,140 col. 2, lines 66-68 to col. 3, lines 1-26.

B) the user associating the mail message with a plurality of individual destinations; and: Abstract; FIG. 4A; FIG. 5; Page 6, lines 4-6; Page 8; lines 16-27; U.S. Patent No. 6,625,773 col. 2, lines 35-36; col. 3, lines 37-41; col. 4, lines 2-16.

C) sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique,: Abstract; FIG. 4A; Page 6, lines 14-21; Page 7, lines 19-29; Page 8, lines 1-6; U.S. Patent No. 6,625,773 col. 4, lines 36-40; col. 4, lines 2-16; col. 6, lines 41-43; U.S. Patent No. 6,415,312 col. 3, line 1-30; U.S. Patent No. 6,625,773 col. 6, lines 60-67 to col. 7, lines 1-27; U.S. Patent No. 6,415,312 Abstract; col. 6, lines 54-67 to col. 7, lines 1-47.

D) across the network via at least one intermediate node to the plurality of individual destinations,: Abstract, page 5, lines 14-20; Page 6, lines 17-21; Page 8, lines 9-22; U.S. Patent No. 6,625,773 FIG. 1, col. 3, lines 18-24; col. 3, lines 34-37.

E) the plurality of individual destinations corresponding to a plurality of individual destination network addresses,: Abstract; Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-51; U.S. Patent No. 6,502,140 col. 3, lines 47-50.

F) wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses,: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 2, lines 66-67 to col. 3, lines 1-52; U.S. Patent No. 6,502,140 col. 2, lines 65-67 to col. 3, lines 1- 50; U.S. Patent No. 6,625,773 col. 4, lines 2-16.

G) wherein at least one of the plurality of individual destination network addresses is a unicast address,: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48.

H) and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet.: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48; col. 2, lines 23-25; col. 6, lines 7-26; U.S. Patent No. 6,625,773 col. 4, lines 47-60.

Independent apparatus claim 3 sets forth the following subject matter.

A) a reception unit for receiving a mail message with addresses corresponding to a plurality of individual destinations; and: Page 5, lines 1-7; Abstract; FIG. 5; Page 6, lines 4-6; U.S. Patent No. 6,415,312 at col. 6, lines 31-44; U.S. Patent No. 6,502,140 col. 2, lines 66-68 to col. 3, lines 1-26.

B) a transmission unit for sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique,: Page 7, lines 7-10; Abstract; FIG. 4A; Page 6, lines 14-21; Page 7, lines 19-29; Page 8, lines 1-6; U.S. Patent No. 6,625,773 col. 4, lines 36-40; col. 4, lines 2-16; col. 6, lines 41-43; U.S. Patent No. 6,415,312 col. 3, line 1-30; U.S. Patent No. 6,625,773 col. 6, lines 60-67 to col. 7, lines 1-27; U.S. Patent No. 6,415,312 Abstract; col. 6, lines 54-67 to col. 7, lines 1-47.

C) across the network via at least one intermediate node to the plurality of individual destinations,: Abstract, page 5, lines 14-20; Page 6, lines 17-21; Page 8, lines 9-22; U.S. Patent No. 6,625,773 FIG. 1, col. 3, lines 18-24; col. 3, lines 34-37.

D) the plurality of individual destinations corresponding to a plurality of individual destination network addresses,: Abstract; Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-51; U.S. Patent No. 6,502,140 col. 3, lines 47-50.

E) wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses,: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 2, lines 66-67 to col. 3, lines 1-52; U.S. Patent No. 6,502,140 col. 2, lines 65-67 to col. 3, lines 1- 50; U.S. Patent No. 6,625,773 col. 4, lines 2-16.

F) wherein at least one of the plurality of individual destination network addresses is a unicast address, and: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48.

G) wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet.: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48; col. 2, lines 23-25; col. 6, lines 7-26; U.S. Patent No. 6,625,773 col. 4, lines 47-60.

Independent computer readable claim 6 sets forth the following subject matter.

A) receiving a mail message with addresses corresponding to a plurality of individual destinations; and: Page 5, lines 1-7; Abstract; FIG. 5; Page 6, lines 4-6; U.S. Patent No. 6,415,312 at col. 6, lines 31-44; U.S. Patent No. 6,502,140 col. 2, lines 66-68 to col. 3, lines 1-26.

B) sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique.: Abstract; FIG. 4A; Page 6, lines 14-21; Page 7, lines 19-29; Page 8, lines 1-6; U.S. Patent No. 6,625,773 col. 4, lines 36-40; col. 4, lines 2-16; col. 6, lines 41-43; U.S. Patent No. 6,415,312 col. 3, line 1-30; U.S Patent No. 6,625,773 col. 6, lines 60-67 to col. 7, lines 1-27; U.S. Patent No. 6,415,312 Abstract; col. 6, lines 54-67 to col. 7, lines 1-47.

C) across the network via at least one intermediate node to the plurality of individual destinations.: Abstract, page 5, lines 14-20; Page 6, lines 17-21; Page 8, lines 9-22; U.S. Patent No. 6,625,773 FIG. 1, col. 3, lines 18-24; col. 3, lines 34-37.

D) the plurality of individual destinations corresponding to a plurality of individual destination network addresses.: Abstract; Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-51; U.S. Patent No. 6,502,140 col. 3, lines 47-50.

E) wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses.: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 2, lines 66-67 to col. 3, lines 1-52; U.S. Patent No. 6,502,140 col. 2, lines 65-67 to col. 3, lines 1- 50; U.S. Patent No. 6,625,773 col. 4, lines 2-16.

F) wherein at least one of the plurality of individual destination network addresses is a unicast address.: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48.

G) and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet.: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48; col. 2, lines 23-25; col. 6, lines 7-26; U.S. Patent No. 6,625,773 col. 4, lines 47-60.

Independent claim 8 sets forth the following subject matter.

A) receiving a mail message in a multicast packet including a packet header comprising a plurality of individual destination network addresses,: Page 5, lines 14-23 Page 8, lines 9-22; Abstract; Page 6, lines 4-6; U.S. Patent No. 6,415,312 at col. 6, lines 31-44; U.S. Patent No. 6,502,140 col. 2, lines 66-68 to col. 3, lines 1-26.

B) wherein at least one of the plurality of individual destination network addresses is a unicast address,: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48.

C) and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet;: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48; col. 2, lines 23-25; col. 6, lines 7-26; U.S. Patent No. 6,625,773 col. 4, lines 47-60.

D) determining one or more "next hops" corresponding to the plurality of individual destination network addresses in the packet header for forwarding the packet; Page 5, lines 18-25; Page 8, lines 9-22.

E) replicating the packet for each "next hop"; and: Page 5, lines 18-25; Page 8, lines 9-22.

F) forwarding one copy of the packet to each of the "next hops".: Page 5, lines 18-25; Page 8, lines 9-22.

Independent computer readable medium claim 13 sets forth the following subject matter.

A) receiving a mail message in a multicast packet including a packet header comprising a plurality of individual destination network addresses,: Page 5, lines 14-23 Page 8, lines 9-22; Abstract; Page 6, lines 4-6; U.S. Patent No. 6,415,312 at col. 6, lines 31-44; U.S. Patent No. 6,502,140 col. 2, lines 66-68 to col. 3, lines 1-26.

B) wherein at least one of the plurality of individual destination network addresses is a unicast address, and: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48.

C) wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet;: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48; col. 2, lines 23-25; col. 6, lines 7-26; U.S. Patent No. 6,625,773 col. 4, lines 47-60.

D) determining the "next hop" for each individual destination network address of the plurality of individual destination network addresses in the packet header; and: Page 5, lines 18-25; Page 8, lines 9-22.

E) replicating the packet for each "next hop".: Page 5, lines 18-25; Page 8, lines 9-22.

Independent apparatus claim 17 sets forth the following subject matter.

A) a reception unit for receiving a mail message in a multicast packet including a packet header comprising a plurality of individual destination network addresses,: Page 5, lines 14-23; Page 6, 14-18; Page 8, lines 9-22; Abstract; Page 6, lines 4-6; U.S. Patent No. 6,415,312 at col. 6, lines 31-44; U.S. Patent No. 6,502,140 col. 2, lines 66-68 to col. 3, lines 1-26.

B) wherein at least one of the plurality of individual destination network addresses is a unicast address, and: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48.

C) wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet;: ;: Page 6, lines 4-6; U.S. Patent No. 6,415,312 col. 3, lines 48-49; U.S. Patent No. 6,502,140 col. 3, lines 47-48; col. 2, lines 23-25; col. 6, lines 7-26; U.S. Patent No. 6,625,773 col. 4, lines 47-60.

D) a determination unit for determining the "next hop" for each individual destination network address of the plurality of individual destination network addresses in the packet header; and: Page 5, lines 18-25; Page 8, lines 9-22.

E) a copying unit for replicating the packet for each of the "next hops".: Page 5, lines 18-25; Page 8, lines 9-22.

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

Whether claims 1, 3, 6, 8, 13, and 17 are unpatentable under 35 U.S.C. §103(a) over *Haggerty et al.* (U. S. Patent No. 6,331,983) in view of *Hardjono et al.* (U.S. Patent No. 6,643,773) and in further view of *Francis* (U. S. Patent No. 5,331,637) .

VII. ARGUMENT

A. WHETHER CLAIMS 1, 3, 6, 8, 13, and 17 ARE UNPATENTABLE OVER *HAGGERTY* IN VIEW OF *HARDJONO AND IN FURTHER VIEW OF FRANCIS*

In the Examiner's Office Action of August 22, 2006, the Examiner rejected claims 1, 3, 6, 8, 10, 13-15, and 17-19 under 35 U.S.C. §103(a) as being unpatentable over *Haggerty et al.* (U. S. Patent No. 6,331,983) in view of *Hardjono et al.* (U.S. Patent No. 6,643,773) and in further view of *Francis* (U. S. Patent No. 5,331,637). The Appellant respectfully submits that claims 1-20 are patentable over *Haggerty* and/or *Hardjono* and/or *Francis* under 35 U.S.C. § 103(a). The Appellant asserts that neither the *Haggerty, Hardjono*, nor *Francis* references, taken either alone or in combination with one another, teach or suggest the claimed limitations.

The Appellant respectfully suggests selection of independent claim 1 as representative of the independent claims on appeal. Independent claim 1 is directed towards a method for distributing electronic mail efficiently across a network of information processing units and intermediate nodes. The method, on an information processing unit, comprises:

> receiving a mail message that is created and sent by a user, the user associating the mail message with a plurality of individual destinations; and
>
> sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique, across the network via at least one intermediate node to the plurality of individual destinations, the plurality of individual destinations corresponding to a plurality of individual

destination network addresses, wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet.

The Appellant asserts that, in particular, the underlined portions of the above claims are not taught or suggested by the *Haggerty* and/or *Hardjono* and/or *Francis* references, taken either alone or in combination with one another.

The claims were rejected under 35 U.S.C. §103(a). The Statute expressly requires that obviousness or non-obviousness be determined for the claimed subject matter "as a whole," and the key to proper determination of the differences between the prior art and the present invention is giving full recognition to the invention "as a whole." As discussed below, the Appellant asserts that these limitations, especially when considered in the context of the other limitations of claim 1, are not described in the prior art references of record and that these limitations render the claimed subject matter unobvious over the prior art.

The present invention is advantageous over the prior art for many reasons. For example, the present invention provides multicast-enabled mail using a reliable multicast scheme, such as Reliable Small Group Multicast or other reliable multicast scheme in a mail distribution system to improve efficiencies in the distribution of electronic mail. Multicast-enabled mail can be used to reduce the cost of network bandwidth in the Internet or in an enterprise network or to increase the usefulness of the existing bandwidth in a given network by making it possible to support more users or more applications in a given amount of network bandwidth.

Overview of Prior Art

The *Haggerty* reference is directed towards standard multicast. *Haggerty* teaches a method and apparatus for establishing connections in a switch-based communications network for multicast traffic. An IP multicast datagram (packet), as taught by *Haggerty*, specifies the IP multicast group address, which represents a host group (col. 3, lines 66-67 and col. 4, lines 1-2). To receive a multicast packet, a user's host application requests membership in the multicast group that is associated with a particular multicast session. The multicast packet is transmitted to the group address specified within the packet. The receiving multicast router or switch then utilizes its knowledge of the subscribing members to subsequently forward a copy of the multicast packet.

Haggerty teaches a prior art LAN packet, IP packet, and IP Multicast packet **(which only contains a single address for a multicast group)**. This IP multicast packet **does not** contain an IP destination host address (See for example, *Haggerty* at col. 13, lines 10-12) so the multicast packet only identifies the multicast group to the MCast router. *Haggerty* explicitly teaches his multicast packets use a Class D IP address, which is a conventional multicast address, i.e., an address for a **single** multicast group. See *Haggerty* at col. 13, lines 10-35. Therefore, *Haggerty* teaches that the MCast router has to use its own internal knowledge of its local hosts to determine where to send a copy of the multicast packet. See *Haggerty* at col. 11, lines 60-67. When the MCast router receives the IP multicast packet, it looks at the **single multicast group address** and determines whether any of its local hosts have subscribed to that **multicast group address**. If the MCast router determines that a local host has subscribed to the multicast group address that was included in the multicast packet, the MCast router sends a single copy onto the local subnet where the local subscriber will receive that packet. See for example, *Haggerty* at col. 12, lines 1-15.

The *Hardjono* reference is directed towards a multicast group member authenticating a message that was received by a transmitting node. The receiving node uses tags to determine if the transmitting node is in the multicast. A first tag that has been received with the message is located by the receiving node and utilized to determine if the transmitting node is in the multicast. The first tag includes data associated with the receiving node and/or the transmitting node. The receiving node then generates a second tag if the transmitting node is determined to be in the multicast. This second tag is then transmitted with the received message to a third node in the multicast. See *Hardjono* at col. 1, lines 28-40.

The *Francis* reference is directed towards a method for routing multicast packets. *Francis* teaches that a node wishing to join a particular multicast group can transmit a packet via a sequence of nodes that includes a core node. The sequence of nodes is on the multicast tree corresponding to the particular multicast group that the node wishes to join. *Francis* teaches that the packet contains a request to join the particular multicast group and the multicast address of the core node of the multicast tree corresponding to the particular multicast group. The packet is received by each node in the sequence of nodes. Each node in the sequence that receives the packet writes an address of the node from which the packet was received in an entry of a multicast forwarding table maintained in the receiving node. The entry is indexed by the multicast address of the core node. If the node that received the packet is not on the multicast tree of the particular multicast group, the node writes an address of the next node in the sequence of nodes in the multicast forwarding table entry indexed by the multicast address of the core node. The packet is then retransmitted to the next node of the sequence of nodes. See *Francis* at the Abstract.

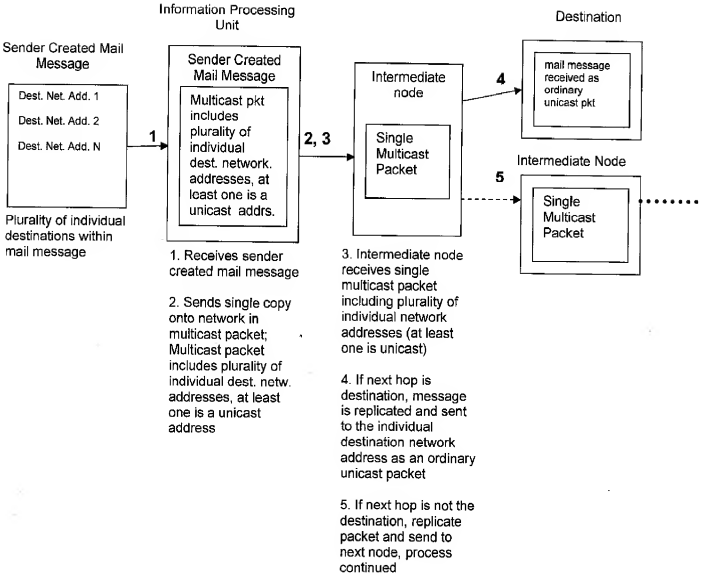
Cited References Fail to Describe All Limitations

With regards to the first limitation of claim 1, the Appellant traverses the Examiner's assertion that the *Haggerty* reference discloses that "receiving a mail message that is created and sent by a user, the user associating the mail message with

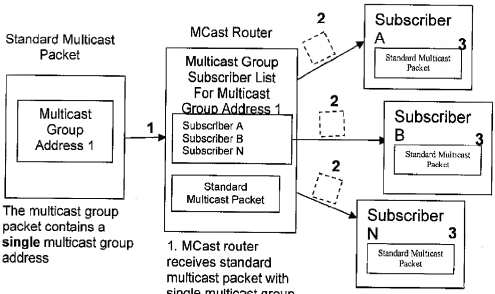
a plurality of individual destinations". The Examiner, in the Final Office Action, cites *Haggerty*, column 11, line 60 to col. 12, line 15 and col. 12, line 55 to col. 13, line 12. The Examiner states that at these citations *Haggerty* teaches "receiving multicast packet with destinations IP addresses of a multicast group". The Examiner has repeated this argument throughout the numerous Office Actions and the Appellant still respectfully holds that this is an incorrect assertion and mischaracterization of the *Haggerty* reference.

To begin, the *Haggerty* reference only teaches **standard multicast**. This is a very important fact because the Examiner has been confusing standard multicast with the novel multicasting scheme of the present invention throughout the prosecution history. Conventional multicast, as taught by *Haggerty*, is receiver oriented, while the presently claimed multicast enabled email system and method is sender oriented. This is a significant difference. That is, the sender of a mail message creates the message and the list of individual destination addresses and initiates the sending of the mail message via a novel multicast packet including the list of individual destination addresses in the packet header, according to the new and novel claimed aspects of the present invention. Conventional multicast, on the other hand, involves user recipients adding themselves (as subscribers) to multicast groups at a multicast server for reception of multicast packets delivering information that is typically distributed by the multicast server to the multicast group. The conventional multicast packet contains only a multicast group address in the packet header. The following diagrams are presented to further illustrate the above stated differences between the presently claimed invention and the *Haggerty* reference.

Presently Claimed Invention



Haggerty



As can be seen from the first diagram representing the presently claimed invention, a sender creates a mail message that is associated with a plurality of individual destinations. The plurality of individual destinations corresponds to a plurality of individual network destinations. This mail message is received by the information

processing unit that sends a multicast packet across a network via at least one intermediate node to the plurality of individual destinations. Also, the multicast packet includes a packet header comprising the plurality of individual destination network addresses, at least one of the individual destination network addresses being a unicast address. The destination receives the mail message as an ordinary unicast packet.

On the other hand, *Haggerty*, as illustrated by the second diagram, teaches a multicast packet that includes a **single** multicast group address, i.e. a single address that is associated with a multicast group and **not** an individual destination network address as recited for the presently claimed invention. The second diagram shows that the MCast router of *Haggerty* receives the standard multicast packet and analyzes a multicast group subscriber list. In other words, *Haggerty* teaches that the originator of the content in the multicast packet does not associate individual destinations with the content. The MCast router has to cross-reference the single multicast group address included in the standard multicast packet with a list of destinations (subscribers) for that multicast group address. The list of destinations is maintained at the router. Based on the identified subscribers, the MCast router sends a copy of the multicast packet to each of the destinations (subscribers). In other words, the subscribers receive the multicast packet as a standard multicast packet and not as an ordinary unicast packet as recited for the presently claimed invention.

As can be seen from the above diagrams and discussion, *Haggerty* only teaches standard multicast. *Haggerty* explicitly teaches using a Class D IP address, which is used for standard multicasting. See *Haggerty* at col. 13, lines 10-35. In standard multicast, which is receiver oriented because the receivers, and not the sender, associate themselves with a multicast group address, a multicast packet is sent to a single multicast group address. The sender, for example, has no way of selecting which receiver will or will not receive the multicast message. The message is sent to all recipients or to none. *Haggerty* explicitly states "to send an IP multicast datagram (packet), the sender specifies the IP multicast group address". See *Haggerty* at col. 3, lines 66-67.

Also, according to *Haggerty*, the final destinations are not specified by the sender, only the multicast group address is specified by the sender. Please note that the sender in traditional multicast, such as taught in *Haggerty*, is not a user. The sender is a multicast server device in the network. Also, using traditional multicast, as taught by *Haggerty*, is inappropriate for distributing mail to address specified by the sender since in traditional multicast the sender (e.g., a multicast server device) does not associate any particular destinations with a message. According to an embodiment of the presently claimed invention, on the other hand, the sender (i.e., including the user) specifically associates the individual destinations, by their individual destination addresses, with the mail message created by the sender. This is different than *Haggerty*.

The Examiner's assertion that *Haggerty* teaches "receiving multicast packet with destinations IP addresses of a multicast group" at column 11, line 60 to col. 12, line 15 and col. 12, line 55 to col. 13, line 12 of *Haggerty* is invalid, especially in view of the discussion above. The definition of a standard multicast packet as taught by *Haggerty* states that a single multicast group address is used. See *Haggerty* at col. 3, lines 66-67 to col. 4, lines 1-2 and col. 13, lines 10-35. Therefore, it is impossible for *Haggerty* to teach receiving multicast packet with destinations IP addresses of a multicast group" either at column 11, line 60 to col. 12, line 15 and col. 12, line 55 to col. 13, line 12 or anywhere else in *Haggerty*. Therefore, *Haggerty* does not teach or suggest the presently claimed, *inter alia*, "receiving a mail message that is created and sent by a user, the user associating the mail message with a plurality of individual destinations". Accordingly, the presently claimed invention distinguishes over *Haggerty* for at least these reasons.

With regards to the second limitation of claim 1, the Appellant traverses the Examiner's assertion that the *Haggerty* reference discloses the following portion of the second claim element: "sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique, across the network via at least one

intermediate node to the plurality of individual destinations, the plurality of individual destinations corresponding to a plurality of individual destination network addresses". The Examiner, in the Final Office Action, cites *Haggerty* at col. 6, lines 12-22; col. 13, lines 36-45; and col. 17, lines 30-64 of *Haggerty* in support thereof.

The Appellant respectfully points out that a **single multicast group address,** as taught by *Haggerty,* is **NOT** the same as a plurality of individual destinations that correspond to a plurality of individual destination network addresses. In standard multicast, as taught by *Haggerty* and discussed above, receivers subscribe and associate themselves with a multicast group address. The Appellant respectfully suggests that the Examiner is incorrectly confounding a single multicast group address to be the same as a plurality of individual destinations that correspond to a plurality of individual destination network addresses.

Haggerty explicitly teaches that "[m]ulticast is a receiver-based concept: receivers join a particular multicast session group and traffic is delivered to all members of that group. **The sender does not need to maintain a list of receivers**" and "a multicast IP packet does not contain an IP destination host address, but rather contains a destination IP address of a multicast group." See *Haggerty* at col. 1, lines 30-33 and 10-12. In other words, the multicast packet, as taught by *Haggerty,* does not have any information as to who the receivers of the packet will be, the packet only contains a single multicast group address to which receivers have subscribed. In other words, the multicast packet only has information to get the packet to the multicast group. The Examiner is citing to *Haggerty* where *Haggerty* only discloses what happens after a router receives the multicast packet. As discussed above, once the router receives the multicast packet, which includes the single multicast group address, the router checks whether any of its local hosts (found in a local list in the router) are subscribed to the group addressed by the multicast packet and the router then forwards a copy of the packet accordingly. The multicast packet, as taught by *Haggerty,* does not contain any information regarding who receives the packet.

Therefore, *Haggerty* is completely inappropriate for distributing mail to addresses specified by the sender since in a mail system the sender/user specifies the receivers while in traditional multicast, such as in *Haggerty*, the receivers are the ones that individually subscribe to receive a multicast message and the sender (e.g., the multicast server) does **not** control (does not affirmatively associate the message with) who will be the specific individual receivers in the plurality of recipients of the multicast message.

Furthermore, the portion of claim 1 at issue states "sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique, across the network via at least one intermediate node to the plurality of individual destinations, the plurality of individual destinations corresponding to a plurality of individual destination network addresses. The phrase "plurality of individual destinations" is referring back to the first claim element of "receiving a mail message that is created and sent by a user, the user associating the mail message with a plurality of individual destinations". Therefore, *Haggerty* would have to teach a mail message that is created and sent by a user and sending a copy of the mail message in a multicast packet to the plurality of individual destinations that have been associated with the mail message by the sender and that correspond to a plurality of individual destination network addresses in the multicast packet header.

As discussed above, *Haggerty* does not teach the first claim element and only teaches that a standard multicast packet is received that has a **single multicast group address**. Therefore, *Haggerty* cannot teach sending a copy of the mail message in a multicast packet to the plurality of individual destinations that have been associated with the mail message by the sender and that correspond to a plurality of individual destination network addresses. Also, a destination network address is the actual physical address of the device that is to receive the mail message. As stated above, *Haggerty* only teaches that the multicast packet contains a **single multicast group address**. *Haggerty* does not teach or suggest that the physical addresses of the plurality of destinations are included within the multicast packet.

Accordingly, because *Haggerty* does not teach or suggest "sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique, across the network via at least one intermediate node to the plurality of individual destinations, the plurality of individual destinations corresponding to a plurality of individual destination network addresses", the presently claimed invention distinguishes over *Haggerty* for at least these reasons as well.

The Examiner correctly states on page 9 of the Final Office Action that *Haggerty* does not teach "distributing electronic mail message across the network using multicast technique". However, the Examiner goes on further to state that *Hardjono* discloses that multicasting is well-known in the art for transmitting data messages such as email messages to selected groups of users across a network like the Internet and relied upon the Abstract and col. 1, lines 13-25 of *Hardjono* in support thereof. *Hardjono* merely mentions in the background section "[o]ne simple example of multicasting entails transmitting an Email message to a plurality of users that each are on a mailing list." See *Hardjono* at col. 1, lines 15-17. *Hardjono* never again mentions an email message nor how to use multicast with an email message. Therefore, *Hardjono* is not enabling with respect to using multicast with an email message as claimed herein. A very plausible reading of *Hardjono* would be that a plurality of users that subscribe to a messaging server receive conventional multicast packets sent to the group by the server. There is no explanation of **how** *Hardjono* would use multicast to send an email message to a group. Hardjono teaches using conventional multicast for its communications.

Additionally, at the time of the present invention, one of ordinary skill in the art would be familiar with using **unicast** for a sender transmitting email to a destination and not multicast. A sender multicasting email messages to specified destinations was not well known in the art as suggested by the Examiner. "All the limitations of a claim must be considered when weighing the differences between the claimed invention and the prior art in determining the obviousness of a process or method claim". See MPEP § 2116.01. "To support a rejection under 35 U.S.C. § 103, the collective teachings of the

prior art must have suggested to one of ordinary skill in the art that, at the time the invention was made, Appellant's claimed invention would have been obvious." See Id. "Motivation to make or use the non-obvious product must be present in the prior art for a 35 U.S.C. 103 rejection to be sustained" See Id.

Note that a multicast message packet is sent to a group of recipients and **not** to a specific recipient. If a multicast packet is transmitted in a network to a group and a particular group member misses the multicast packet, for example because the device has been temporarily turned off or has operational difficulties, the sender does not know that the group member missed the packet and the group member will not receive the missed multicast packet. Alternatively, when a sender transmits a unicast packet to a specified destination (i.e., to a unicast address in the packet header), if the intended recipient misses the unicast message, the sender will not receive a handshake message that would confirm receipt of the packet by the intended recipient, and so the sender affirmatively knows that a destination has not received the transmitted packet and can try again to resend the missed packet to the intended recipient.

Furthermore, Appellant points out that destinations and destination network addresses are different. The multicast packet, as claimed for independent Claim 1 includes a packet header comprising a plurality of destination network addresses. As discussed above, the presence of the destination network addresses in the packet header allows the multicast packet to be routed through the network to the final recipient. User-level addresses such as johndoe@abc.com are not kept in the packet header, namely, they are neither physical network addresses, nor are they used to route the multicast packet through the network. *Hardjono*, like *Haggerty*, teaches traditional multicast and therefore the Appellant respectful suggests the Examiner is incorrect when stating that "multicasting technique is well-known in the art for transmitting data messages such as email messages..." As discussed above, traditional multicast is not appropriate for the distribution of electronic mail to addresses specified by the sender because in traditional multicast it is the receivers individually who subscribe and determine they will be receivers in the multicast group. The sender, in traditional

multicast being the multicast server and not a user, does **not** determine the receivers of a multicast packet. The sender, on the other hand, in the presently claimed invention does affirmatively determine and associate with the multicast packet who are the recipients of the electronic mail message.

Neither *Hardjono*, nor the Examiner has pointed out, **how** a sender in *Hardjono* can send electronic mail to specific receivers of his/her choice with traditional multicast. Contrary to *Hardjono*'s assertion, conventional multicast is not used to transmit an electronic mail message to a sender specified plurality of users and traditional multicast does not usually include provision for reliable transmissions, as has been claimed for the present invention. Using multicast for email messages is not well known in the art, but is in fact well known **not** to be used to transmit email messages. Therefore, the presently claimed invention distinguishes over *Haggerty* alone and/or in view of *Hardjono*.

Also, the Examiner stated on page 5 of the Final Office action and in various previous Office Actions that "*Haggerty* does suggest the use of multicasting technique with unicast packets [see *Haggerty*, Line 51 to Col. 4, Line 31]". However, a careful reading of these citations reveals that *Haggerty* teaches standard multicast, which does not include unicast addresses. For example *Haggerty* explicitly teaches the use of Class D addresses, which are **not** unicast addresses. Furthermore, at col. 13, lines 10-11, *Haggerty* explicitly states "as previously described, a multicast IP packet does not contain an IP destination host address, but rather contains a destination IP address of a multicast group." *Haggerty* even distinguished between unicast and multicast address. See for example, col. 10, lines 36-67 to col. 12, lines 1-25. The Appellant respectfully suggests that the Examiner is confounding that *Haggerty* teaches using unicast address with multicast packets. Therefore, the presently claimed invention distinguishes over *Haggerty* for at least these reasons as well.

The Examiner correctly states on page 9 of the Final Office Action that *Haggerty* "does not explicitly teach the multicast packet includes a packet header comprising the

plurality of individual destination network addresses wherein at least one of the plurality of individual network addresses is a unicast address and where the packet/message is destined for reception at the destination corresponding to the unicast as an ordinary unicast packet". However, the Examiner goes on to combine *Haggerty* with *Francis* to overcome the above deficiencies of *Haggerty*. The Examiner states that "it would have been obvious to one of ordinary skill in the art at the time of the invention was made to incorporate the teaching of unicast address in the list of destination addresses disclosed by *Francis* into the transmission of multicast messages/packets across the network of information processing units and intermediate nodes disclosed by *Haggerty*, in order to branch packets to appropriate destination and thus saving time for packet distribution process.

With respect to the remaining portion of the second claim element, the Appellant also traverses the Examiner's assertion that *Francis* teaches "wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet".

Francis, like *Haggerty* is concerned with standard multicasting. Just because *Francis* mentions unicast and multicast does not automatically suggest that *Francis* teaches the above claim element. The Examiner directs the Appellant to col. 5, line 40 to col. 6, line 54; col. 7, line 38 to col. 8, line 33col. 11, lines 27-48. Col. 5, line 40 to col. 6, line 24 merely describes the use of unicast packets to build a multicast distribution tree. There is no discussion of multicast packets in this citation let alone "a packet header comprising the plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet".

Col. 6, lines 35-54 also does not teach the above claim element. In fact, the packet described at this citation only has a single destination address that corresponds to a multicast group. Col. 7, line 38 to col. 8, line 33 merely describes a mechanism for building a multicast distribution tree. This citation does not teach the above claim element as well. Col. 11, lines 27-48 merely teaches that a node not in a multicast group can forward a received multicast packet. The node retrieves information from a unicast forwarding table being kept at the node itself and lookups up the multicast address of the core node. This does not teach the above claim element.

In fact because the claim language at issue includes language that refers back to the first element of claim 1, to read upon claim 1 and overcome the deficiencies of *Haggerty, Francis* is required to teach a mail message that is created and sent by a user and sending a copy of the mail message in a multicast packet to the plurality of individual destinations that have been associated with the mail message by the sender and that correspond to a plurality of individual destination network addresses, wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet. Because *Francis* teaches standard multicast packets, *Francis* cannot teach a mail message received by a user that a user has associated with a plurality of individual destinations and at least one of these destinations receives the message as an ordinary unicast packet. As discussed above, nowhere does *Francis* teach this. Therefore, the presently claimed invention distinguishes over *Haggerty* alone and/or in view of *Francis* for at least these reasons.

Furthermore, as the references do not teach receiving "a mail message that is created and sent by a user, the user associating the mail message with a plurality of individual destinations; and sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique, across the network via at least one

intermediate node to the plurality of individual destinations, the plurality of individual destinations corresponding to a plurality of individual destination network addresses, wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet", the Appellant respectfully asserts that the suggestion for these elements cannot come from the Applicant's own specification. The Federal Circuit has repeatedly warned against using the Applicant's disclosure as a blueprint to reconstruct the claimed invention out of isolated teachings of the prior art. See MPEP §2143 and *Grain Processing Corp. v. American Maize-Products*, 840 F.2d 902, 907, 5 USPQ2d 1788 1792 (Fed. Cir. 1988) and *In re Fitch*, 972 F.2d 160, 12 USPQ2d 1780, 1783-84 (Fed. Cir. 1992). The references of *Haggerty* and/or *Hardjono* and/or *Francis* do not even mention, teach, or suggest, these claim limitations.

Accordingly, independent claims 1, 3, 6, 8, 13, and 17 distinguish over *Haggerty* and/or *Hardjono* and/or *Francis* and any other reference cited by the Examiner throughout prosecution history for at least the reasons stated above. Claims 2, 4-5, 7, 9-12, 14-16, and 18-20 depend from claims 1, 3, 6, 8, 13, and 17, respectively. Since dependent claims contain all the limitations of the independent claims, claims 2, 4-5, 7, 9-12, 14-16, and 18-20, and 15-19 distinguish over *Haggerty* and/or *Hardjono* and/or *Francis* as well. Therefore, the rejection of claims 1-20 should be reversed.

CONCLUSION

For the reasons stated above, the Appellant respectfully contends that each claim is patentable. Therefore, reversal of all rejections is courteously solicited.

Respectfully submitted,

Dated: February 26, 2007

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VIII. CLAIMS APPENDIX

1. A method for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the method on an information processing unit comprising the steps of:

receiving a mail message that is created and sent by a user, the user associating the mail message with a plurality of individual destinations; and

sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique, across the network via at least one intermediate node to the plurality of individual destinations, the plurality of individual destinations corresponding to a plurality of individual destination network addresses, wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet.

2. The method as defined in claim 1, wherein the reliable multicast technique comprises a reliable Small Group Multicast technique.

3. An information processing unit for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the information processing unit comprising:

a reception unit for receiving a mail message with addresses corresponding to a plurality of individual destinations; and

a transmission unit for sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique, across the network via at least one intermediate node to the plurality of individual destinations, the plurality of individual destinations corresponding to a plurality of individual destination network addresses, wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet.

4. The information processing unit as defined in claim 3, wherein the reliable multicast technique comprises a reliable Small Group Multicast technique.

5. The information processing unit as defined in claim 3, wherein the transmission unit operates according to a communication protocol to process ACKs and NAKs as well as packet retransmissions.

6. A computer readable medium including instructions for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the computer readable medium comprising instructions for:

receiving a mail message with addresses corresponding to a plurality of individual destinations; and

sending a single copy of the mail message, in a multicast packet and using a reliable multicast technique, across the network via at least one intermediate node to the plurality of individual destinations, the plurality of individual destinations corresponding to a plurality of individual destination network addresses, wherein the multicast packet includes a packet header comprising the plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet.

7. The computer readable medium as defined in claim 6, wherein the reliable multicast technique comprises a reliable Small Group Multicast technique.

8. A method for distributing electronic mail across a network of information processing units and intermediate nodes, the method on an intermediate node comprising the steps of:

receiving a mail message in a multicast packet including a packet header comprising a plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet;

determining one or more "next hops" corresponding to the plurality of individual destination network addresses in the packet header for forwarding the packet;

replicating the packet for each "next hop"; and

forwarding one copy of the packet to each of the "next hops".

9. The method as defined in claim 8, wherein the determining, replicating and forwarding steps operate according to a Small Group Multicast scheme.

10. The method as defined in claim 8, further comprising the step of:

repetitively executing the determining, replicating and forwarding steps for each newly received packet.

11. The method as defined in claim 8, further comprising the steps of:

processing ACKs and/or NAKs; and

performing packet retransmissions.

12. The method as defined in claim 8, wherein the multicast packet comprises a Small Group Multicast packet.

13. A computer readable medium including instructions for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the computer readable medium comprising instructions for:

receiving a mail message in a multicast packet including a packet header comprising a plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet;

determining the "next hop" for each individual destination network address of the plurality of individual destination network addresses in the packet header; and

replicating the packet for each "next hop".

14. The computer readable medium as defined in claim 13, further comprising the instruction for:

forwarding a copy of the packet to each "next hop".

15. The computer readable medium as defined in claim 14, further comprising the instruction for:

repetitively executing the determining, duplicating and forwarding steps for each newly received packet.

16. The computer readable medium as defined in claim 15, further comprising the instructions for:

processing ACKs and/or NAKs; and

handling packet retransmissions.

17. An intermediate node for distributing electronic mail efficiently across a network of information processing units and intermediate nodes, the intermediate node comprising:

a reception unit for receiving a mail message in a multicast packet including a packet header comprising a plurality of individual destination network addresses, wherein at least one of the plurality of individual destination network addresses is a unicast address, and wherein the mail message is destined for reception at the individual destination corresponding to the unicast address as an ordinary unicast packet;

a determination unit for determining the "next hop" for each individual destination network address of the plurality of individual destination network addresses in the packet header; and

a copying unit for replicating the packet for each of the "next hops".

18. The intermediate node as defined in claim 17, further comprising:

a forwarding unit for forwarding a copy of the packet to each of the "next hops".

19. The intermediate node as defined in claim 18, further comprising:

a repeater unit for repetitively executing the determining, duplicating and forwarding steps for each newly received packet.

20. The intermediate node as defined in claim 19, further comprising:

an acknowledge unit for processing ACKs and/or NAKs; and

a retransmit unit for handling packet retransmissions.

IX. EVIDENCE APPENDIX

NONE

X. RELATED PROCEEDINGS APPENDIX

NONE